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# NOTICES

OF THE

# WESTERN COAST OF THE UNITED STATES,

## UNITED STATES COAST SURVEY,

A. D. BACHE, Superintendent.

REVISED EDITION—DECEMBER, 1851.

GIDEON & Co., Printers.

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# No. 1.

## U. S. COAST SURVEY,

A. D. BACHE, SUPERINTENDENT.

# SAILING DIRECTIONS,

## TO ACCOMPANY THE NEW CHART OF THE WESTERN COAST OF THE U. S.

**First edition, published December, 1850.**

For the western coast of the United States, from Monterey to Columbia river, by Lieut. Commanding W. P. McArthur, U. S. N., assistant in the Coast Survey, and Lieutenant Washington A. Bartlett, U. S. N., assistant.

From March to October the prevailing wind along the coast, and for many miles to the westward, is fresh from the northwest, being freshest from 10 a. m. to 2 p. m., and not unfrequently falling light during the night. During this season of the year the northwest wind blows with almost the regularity of a trade wind, causing a current of about a half a knot per hour along the coast, setting to the southward. During the months of August and September fogs prevail; there are no heavy gales of wind, and little or no rain.

From October to March the wind is variable, both with regard to velocity and direction; heavy gales occur from the southeast, south, and southwest, generally accompanied by protracted rain, and causing a very heavy sea and swell along the coast. The current sets generally to northward, varying in velocity with the strength of the wind.

Sailing vessels bound to the northward from *Monterey*, or any more northern port, during the summer season, should stand well off shore, not too close hauled, until about two hundred miles from the land, when they will be beyond the influence of the southerly current, and in a situation to take advantage of a slant of wind, which frequently occurs from the west-northwest. They would do well not to approach the land unless favored by the wind, so as to enable them to lay their course, or nearly so, until up with the latitude of the destined port.

Steamers should follow the coast from point to point as nearly as possible, always keeping within fifteen miles of the land. They will by this means shorten the distance, and frequently avoid the strong northwest winds, as they will often find it quite calm close in with the shore when there is a strong wind to seaward. Bound to the northward, in the *winter* season, keep as close along the land as practicable, and take every advantage of all southerly winds to make latitude. Always endeavor to make the land at least twenty or thirty miles to the southward of the destined harbor.

Bound to the southward, keep the coast in sight, and take advantage of either tack upon which the most latitude may be made, always making the land to the northward of the port in summer, and to the southward in the winter season.

*For latitudes, longitudes, courses, and distances, refer to the charts and tables.*

## SHEET No. 1.

Bound into San Francisco or Monterey, use every opportunity to observe for latitude and longitude, so as to know the vessel's position up to the latest moment, as fogs and haze, preventing observations, prevail near the land. Allow generally for a southerly set of half a mile an hour, until within about fifty miles of land; after which, at times, it is not appreciable. With these precautions, vessels may steer boldly on, shaping a course for the *South Farrallon,* an islet about 250 feet high and a mile long, having 14 fathoms water, and good holding ground on the S. E. side. This islet has been recommended as the site for the outer light of *San Francisco.*

On approaching soundings the water becomes of a pale green color Soundings may be had in 60 to 40 fathoms, soft ooze, if approaching *Punta de los Reyes.* Below 40 fathoms is near the land, and the surf should be heard, if haze prevents the land from being seen. If the soundings are thirty fathoms or under, and the sea smooth, anchor with a kedge until the land becomes visible, so as to take a compass bearing, as the position cannot otherwise be relied on.

If up with the *S. Farrallon* and night approaching, or there are appearances of fog, anchor at the *Farrallon* and wait daylight, when the morning breeze will carry the vessel to the bar or pilot ground; course N. E. ¼ E., (by compass,) 27 miles.

Inside the *Farrallones* the "set" is generally towards the north shore, but it may be approached without risk, keeping outside of the KELP, which marks rocks under water.

Duxbury reef is 6 W. by N. $\frac{1}{4}$ N. from *Boneta point*, projecting nearly two miles from the bluff, is well marked with the kelp, and the sea generally breaks on it.

TO ENTER SAN FRANCISCO WITHOUT A PILOT, bring *Alcatraz* island (see chart and view,) in range with *Fort point*, and run on. This gives *Point Boneta* a good berth, and all dangers on the south shore are plain in sight.

IF BOUND INTO MONTEREY, shape the course for *Point Año Nuevo*, in order to avoid *Point Pinos*. At *Año Nuevo* there is no danger clear of the shore line. When up with Cape *Año Nuevo*, the *Point Pinos*, (the only point where the pines reach the sea,) will be clearly seen, and as the beach rises to view the town of *Monterey* also. Give the south shore a good berth, (most necessary near night, as it generally falls calm,) and stand on; anchor nearest to the *western shore*, a short distance from the wharf.

The holding ground is good, and with good tackle vessels can ride at anchor in safety at all seasons of the year.

Going out, make long stretches towards *Año Nuevo*, in order to avoid the "set" and swell off *Point Pinos*.

*The bay of Carmel*, south of *Point Pinos*, must be carefully avoided.

*Punta de los Reyes* is a high, bold, and very prominent headland, visible in clear weather fifty miles.

Between May and October vessels may anchor in *Sir Francis Drake's* bay, but it is not advisable, as a kedge is equally safe to preserve position outside in case of fog.

From *Punta de los Reyes to Bodega* the coast is variable in height, but clear of danger, and with a commanding breeze may be approached at pleasure. Should the wind fail when to the northward of *Punta de los Reyes*, drop the kedge on reaching 30 fathoms, as the swell will set the vessel gradually towards the beach.

*Bodega head* is known from *Punta de los Reyes* by having a *beacon* on the sea bluff like a *block-house*, 25 feet square, and near it a *staff*, on which there is usually a *flag*. For courses and distances see table.

Falling in with the land northward of *Bodega*, do not pass inside of *fixed kelp*, as it indicates foul ground. It is near the shore.

From *Bodega to Cape Mendocino* the coast consists of high, bold cliffs, with but few indentations; the dangers are only at the shore line.

Near Cape Mendocino is *Blunt's reef,* (a small patch of rock *under water,*) sea generally breaking upon it.

There is a clear channel, 2½ miles in width, between the reef and the Sugar Loaf rock at the Cape.

There are no dangers from *Cape Mendocino to Trinidad head;* the beach may be approached to within one mile, and the anchorage is good all along the shore in 13 fathoms.

## SHEET No. 2.

Having passed to the westward of *Cape Mendocino, Trinidad head* will be readily known by referring to the view. *Trinidad bay* is an open roadstead, only available from April to November. The southerly winds of winter render it an unsafe anchorage. To enter, pass between the main round bluff, or headland, and the islet, until the town is opened, when anchor in 8 fathoms, good holding ground. In April and October anchor well outside, to have room for getting under way if necessary. Do not pass inside the *Turtles,* (see chart,) as the ground is broken and the swell generally heavy.

For the entrance to *Humboldt harbor,* see the chart.

Captain Ottinger, U. S. revenue service, reports three fathoms at low water on the bar of this harbor; no directions can be given for entering until surveyed.

North of Trinidad head do not approach the shore closely, unless the breeze is steady. The dangers are in plain sight. At night it generally falls calm, and if calm the swell will set the vessel too near the beach.

*Klamath* river has 15 feet water on the bar at low water. It is not difficult of entrance with a good breeze, but very difficult to get out of, the current running so strong that sailing vessels must come out STERN FOREMOST TO BE STEERED. There is a staff on the south side of the river, on which a white flag, with black ball, is generally hoisted.

*Port St. George* is a safe anchorage in the summer at the point indicated by the anchor. The reef off *Cape St. George* consists of rocky islets. The in-shore channel is good and clear, and shown by the track of the schooner Ewing. From *Pelican bay,* with a breeze, take this channel.

From *Cape St. George* to the *Toutounis,* or *Rogue's river,* there are no special dangers. In the summer, vessels may anchor any where along the coast, and there are landing places south of all rocky points.

The Toutounis, or Rogue's river, has but 10 feet on the bar, is rapid, and passes between high mountains.

Avoid the KELP, which indicates rocks under water, and do not approach the shore at night.

*Ewing harbor* is a safe anchorage in summer. There is no surf in the landing cove.

FROM CAPE ST. GEORGE TO CAPE ORFORD, THE COAST IS THICKLY INHABITED BY BANDS OF WILD INDIANS, AND CARE IS NECESSARY NOT TO BE SURPRISED BY THEM.

There is a reef of rocky islets off *Cape Orford.*

From *Cape Orford* to *Cape Arago,* there is no danger clear of the beach.

The *Kowes river* has not yet been examined. The anchorage to the northward of the bluff is good.

The *Umpqua* is accessible for steamers, and for *small* sailing vessels *only,* under very favorable circumstances.

When off *Cape Arago,* in clear weather, the high sand bluffs of the *Umpqua* are plainly seen.

## SHEET No. 3.

The coast from the *Umpqua river* to the *Columbia* is generally bordered by a sand beach, with white sand hills, and the interior is densely wooded with fir or pine. The cliffs, when they occur, are bold, but afford no shelter for anchoring. In the summer a vessel may anchor in twenty fathoms off any of these beaches.

The *Alseya, Yaquinna,* and *Killamook* rivers require further examination.

In proceeding to the northward, in winter, make *Killamook head,* and if the weather renders approach to the bar of the *Columbia* undesirable, keep to the southward of *Cape Hancock,* (Disappointment,) as the current is northwardly in winter.

There are *good pilots* in attendance at the mouth of the *Columbia,* and the chart of the entrance and bar will give directions for approaching. The pilots are usually off the south channel, in a small schooner showing a fly at the main; if not seen, fire your guns.

*Cape Hancock* (Disappointment) has several trees trimmed up, showing a "broom top," and may be thus known from the cape to the northward of *Shoal Water bay.*

To avoid mistaking *Shoal Water bay* for the *mouth* of the *Columbia*, (the soundings being similar,) MAKE KILLAMOOK HEAD. Never omit this in winter. There are no dangers of the beach northward of *Killamook head*, and the soundings in approaching it are regular.

NOTE.—Notwithstanding the remarks as to the general fact of the winds prevailing in the N. W. and N. N. W. quarter during the summer, it is proper to state that, in the month of June, 1850, the winds to the northward of San Francisco were light from the *southward and westward*, with showers north of Mendocino for the whole month, and the coasters ran to the northward with all steering sails.

It is, however, yet to be demonstrated whether June is a regular period of southerly breezes.

# TABLE OF LATITUDES AND LONGITUDES

*Of the ports, rivers, islands, reefs, capes, etc., from Monterey to Columbia river.*

| | Latitude. | Longitude. |
|---|---|---|
| | ° ′ ″ | ° ′ ″ |
| Point Pinos, Monterey | 36 38 00 N. | 121 58 00 W. |
| Point Santa Cruz | 36 56 00 | 122 06 30 |
| Point Año Nuevo | 37 11 00 | 122 23 00 |
| Point San Pedro | 37 34 00 | 122 28 00 |
| Point Lobos, western extremity | 37 47 00 | 122 32 00 |
| Fort Point, (entrance to San Francisco) | 37 48 20 | 122 27 30 |
| South Farrallon | 37 41 37 | 122 59 12 |
| Northwest Farrallon | 37 44 00 | 123 08 00 |
| Punta de los Reyes | 38 01 30 | 123 02 30 |
| Point Tornales | 38 14 30 | 123 02 30 |
| Bodega Head | 38 18 30 | 123 05 00 |
| Fort Ross | 38 33 00 | 123 16 30 |
| Blunt's reef, off Mendocino | 40 27 15 | 124 30 00 |
| Cape Mendocino. Sugar loaf | 40 27 00 | 124 27 30 |
| False Mendocino | 40 31 00 | 124 26 00 |
| Eel river, (entrance) | 40 39 30 | 124 17 00 |
| Table bluff | 40 44 00 | 124 13 00 |
| Humboldt harbor, (entrance) | 40 51 00 | 124 08 00 |
| Trinidad bay, (anchorage) | 41 05 40 | 124 05 00 |
| Trinidad city | 41 06 20 | 124 05 00 |
| The Turtles, northwest of Trinidad | 41 12 00 | 124 12 30 |
| Red Wood creek | 41 18 30 | 124 07 00 |
| Redding's rock | 41 23 00 | 124 16 00 |
| Klamath river, (entrance) | 41 34 00 | 124 01 30 |
| Port St. George, (anchorage) | 41 43 00 | 124 04 00 |
| Cape St. George | 41 47 00 | 124 07 00 |
| St. George's reef or islets, the northwest extremity | 41 51 00 | 124 13 00 |
| Pelican bay—Indian village, (anchorage) | 41 55 00 | 124 04 00 |
| Toutounis, or Rogue's river | 42 25 30 | 124 21 00 |
| Toutounis reef, southern extremity | 42 27 30 | 124 28 00 |
| Ewing harbor, (anchorage) | 42 44 00 | 124 21 00 |
| Cape Orford, or Blanco | 42 55 00 | 124 26 30 |
| Orford reef, islet above water, southwest extremity | 42 49 00 | 124 32 00 |
| Coquille river | 43 12 40 | 124 16 00 |
| Cape Arago | 43 27 00 | 124 17 00 |
| Kowes river, (entrance) | 43 28 00 | 124 10 00 |
| Umpqua river, (entrance) | 43 44 00 | 124 09 00 |
| Cape Perpetua, south bluff | 44 11 00 | 124 01 00 |
| Cape Perpetua, north bluff | 44 16 30 | 124 01 00 |
| Alseya river | 44 39 00 | 123 56 00 |
| Three Marys, or islets off Cape Foulweather | 44 44 00 | 123 57 30 |
| Cape Foulweather | 44 45 00 | 123 57 00 |
| Nekas river, (entrance) | 44 57 00 | 123 52 30 |
| Yaquinna river, (entrance) | 45 06 00 | 123 54 00 |
| Cape Lookout | 45 23 00 | 123 55 30 |
| Killamook river | 45 32 00 | 123 53 00 |
| False Killamook | 45 46 30 | 123 59 00 |
| Killamook head | 45 54 00 | 123 59 00 |
| Point Adams | 46 12 40 | 123 57 34 |
| Cape Hancock, or Disappointment | 46 16 16 | 124 01 42 |

## BEARINGS AND DISTANCES, WITH THE VARIATIONS OF THE COMPASS,

*From San Francisco to Monterey, and from San Francisco to the Columbia river.*

| POINTS. | True bearings. | Variation. | Distance in nautical miles. |
|---|---|---|---|
| *From San Francisco to the southward, as far as Monterey.* | | | |
| Point Boneta to Point San Pedro | S. 3° E. | 15° 30′ E. | 16 |
| Point San Pedro to Point Año Nuevo | S. 11 E. | ....do.... | 22½ |
| Año Nuevo to Santa Cruz | S. 42 E. | ....do.... | 20 |
| Santa Cruz to Monterey | S. 30 E. | ....do.... | 22 |
| *Farrallones de los Frayles.* | | | |
| S. Farrallon to Point Boneta | N. 62 E. | ....do.... | 28 |
| S. Farrallon to N. W. Farrallon | N. 38 W. | ....do.... | 9 |
| S. Farrallon to Point Reyes | N. 3 W. | ....do.... | 25 |
| N. W. Farrallon to Point Reyes | N. 11 E. | ....do.... | 17½ |
| N. W. Farrallon to Point Boneta | N. 80 E. | ....do.... | 31 |
| S. Farrallon to Point Año Nuevo | S. 52 E. | ....do.... | 39 |
| *From San Francisco to the northward.* | | | |
| Point Boneta to Duxbury reef | N. 62 W. | ....do.... | 5½ |
| Point Boneta to N. W. Farrallon | S. 80 W. | ....do.... | 31 |
| Point Boneta to S. Farrallon | S. 62 W. | ....do.... | 28 |
| Point Boneta to Point de los Reyes | N. 64 W. | ....do.... | 30 |
| Point Reyes to Point Tornales | N. 3 W. | ....do.... | 13 |
| Point Reyes to Bodega head | N. 5 W. | ....do.... | 17 |
| Point Reyes to Port Ross | N. 17 W. | ....do.... | 34 |
| *Cape Mendocino to the northward.* | | | |
| Cape Mendocino to Blunt's reef | N. 80 W. | 16° 30′ E. | 2½ |
| Cape Mendocino to False cape | N. 8 E. | ....do.... | 4 |
| False Mendocino to Eel river | N. 33 E. | ....do.... | 16 |
| False Mendocino to Humboldt bar | N. 31 E. | ....do.... | 23 |
| False Mendocino to Trinidad head | N. 20 E. | ....do.... | 38 |
| Humboldt bar to Trinidad head | N. 11 E. | ....do.... | 16 |
| Redding's rock to the Turtles | S. 11 E. | ....do.... | 13 |
| Redding's rock to the Klamath river | N. 45 E. | ....do.... | 14 |
| Redding's rock to Port St. George | N. 20 E. | ....do.... | 22 |
| Port St. George to Klamath river | S. 16 E. | 18° E. | 10 |
| Cape St. George to N. W. end of reef | N. 43 W. | ....do.... | 6 |
| Rogue's river reef to Cape St. George reef, S. W. extremity | S. 15 E. | ....do.... | 38 |
| Ewing harbor to Rogue's river reef, S. W. extremity | S. 16 W. | ....do.... | 17½ |
| Ewing harbor to southern end of Orford reef | N. 61 W. | 19° E. | 9 |
| Cape Orford to southern extremity of Orford reef | S. 37 W. | ....do.... | 7½ |
| Cape Orford to Coquille river | N. 18 E. | ....do.... | 20 |
| Coquille river to Cape Arago | N. 3 E. | ....do.... | 14 |
| Cape Arago to Kowes river | E. 5 N. | 20° 40′ E. | 5 |
| Cape Arago to Umpqua river | N. 17 E. | ....do.... | 18 |
| Umpqua head to Cape Perpetua | N. 14 E. | ....do.... | 27 |
| Cape Perpetua (south end) to Alseya river | N. 9 E. | ....do.... | 28 |
| Alseya river to Cape Foulweather | N. 5 W. | ....do.... | 6½ |
| Foulweather to Yaquinna | N. 5 E. | ....do.... | 21 |
| Yaquinna to Cape Lookout | North. | ....do.... | 17 |
| Cape Lookout to False Killamook | N. 5° W. | ....do.... | 25 |
| False Killamook to Killamook | North. | ....do.... | 7½ |
| Killamook head to south bar of Columbia | N. 3° W. | ....do.... | 17 |
| Killamook head to Cape Hancock, (Disappointment) | N. 3 W. | ....do.... | 21½ |

## No. 2.

## ISLANDS AND RIVERS.

Report of Professor A. D. Bache, Superintendent U. S. Coast Survey, to the Secretary of the Treasury, in relation to the rivers and islands between Monterey and the Columbia river.

COAST SURVEY OFFICE,
*December* 18, 1850.

SIR: I have the honor to communicate a fourth hydrographical notice relating to the western coast of the United States, containing a description of the islands and rivers between the harbor of Monterey and the mouth of the Columbia river, by Lieutenant Commanding W. P. McArthur, U. S. N., and assistant in the Coast Survey. I would respectfully request authority for its publication.

Very respectfully, yours,
(Signed,) A. D. BACHE,
*Superintendent U. S. Coast Survey.*

Hon. THOMAS CORWIN,
*Secretary of the Treasury.*

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Report of Lieutenant Commanding W. P. McArthur to Professor A. D. Bache, Superintendent of the Coast Survey, communicating a description of the islands and rivers between the harbor of Monterey and the mouth of the Columbia river.

### THE FARRALLONES.

There are no islands, properly so called, between Monterey and the mouth of the Columbia river. Those most deserving the name are the "*Farrallones,*" a group of detached islets off the harbor of San Francisco. They lie in a northwest and southeast direction from each other, and form two groups, the northwestern and southeastern. The distance from the extreme northwestern to the extreme southeastern islet is twelve miles. In the whole group, there are seven which appear above water. The southeast islet is the largest of the group, and is distant from the fort, at the mouth of the harbor, twenty-nine $\frac{9}{10}$* miles, and bears from the fort S. 75° 12'* W. true. This islet is about 150 or 200 feet high, and on the southeast side there is an anchorage in 11 fathoms water, hard (probably rocky) bottom; it is tolerably sheltered from the northwest wind and sea.

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*Corrected from first edition. 'See No. 3.'

In order to distinguish between the northwest and southeast groups, it is only necessary to observe that the northwest group shows three rocks of nearly the same size, lying nearly east and west from each other; nearly a mile apart, and sending off a reef to the eastward about one mile in extent.

About one-third the distance from the southeast Farrallon, there are 41 fathoms water, sand and mud. The soundings gradually diminish until up with the bar, off the mouth of the harbor. The deepest water on the bar is 7 fathoms, (hard sandy bottom,) and the best range for crossing the bar is to have the Fort point and Alcatraz island in range.

I consider that the southeast Farrallon is an important land-mark in making the harbor of San Francisco, and have already recommended that a light-house be placed on it.

The situation of the remaining rocks, islets, and reefs, are sufficiently defined on the reconnoissance chart.

## RIVERS.

The important rivers between San Francisco and the Columbia are, perhaps, sufficiently well defined on the reconnoissance chart, as far as latitude and longitude are concerned.

*Eel river.*—There are 9 feet water on the bar at the mouth of this river. The entrance is very narrow, and the swell so high generally, as to render it difficult and dangerous for sailing vessels. Steamers might enter and depart without difficulty.

*Humboldt river.*—The entrance to this bay is half a mile in width, between the breakers. There are 18 feet water on the bar at mean low water.

*The Klamath.*—On the bar of this river there are 17 feet water at mean low water. The channel is so narrow, and the current so strong, that I deem it unsafe for sailing vessels. Steamers are required to make this river useful.

*Rogues' river.*—This river has 10 feet water on the bar at the mouth, at mean low water; but it is too narrow for sailing vessels, as there is scarcely room to turn in the channel.

*The Coquille river* is not available for any thing larger than small boats and canoes.

*The Kowes.*—This river was not so closely examined, but to judge by appearances at the mouth, I do not hesitate to express the opinion that it will be found to be available and very useful for steamers.

*The Umpqua.*—I crossed the bar of this river in the second cutter, in 14 feet water, and passed into three fathoms on the inside of the bar, the rollers breaking at the time all the way across the channel. The channel, in my opinion, is practicable for steamers, but dangerous to sailing vessels, unless under very favorable circumstances.

The remaining rivers to the northward can only be entered by small boats, except, perhaps, the "Yaquinna," which might be entered by vessels of a larger class.

In making my report, with regard to the navigation of these rivers, I beg leave to be considered as only giving my *opinion*, unless in case when I mention particularly the depth of water; then, of course, I speak authoritatively. I would recommend, however, an early and detailed examination of all; and for this purpose a steamer is *indispensable*.

All of which is respectfully submitted by your obedient servant,

(Signed,) W. P. McARTHUR,
*Lieut. Com'g and Assist. U. S. Coast Survey.*

To Professor A. D. BACHE,
*Superintendent U. S. Coast Survey,*
*Washington, D. C.*

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## No. 3.

## POINT LOBOS AND THE FARRALLONES.

Report of the Superintendent of the Coast Survey to the Secretary of the Treasury, correcting important errors in the position of the Farrallones and Point Lobos entrance to San Francisco bay.

COAST SURVEY OFFICE,
*Washington, April* 24, 1851.

SIR: I have the honor to submit the following report from R. D. Cutts, esq., assistant Coast Survey, correcting important errors in previous reports as to the position of the Farrallones and Point Lobos entrance to San Francisco bay, which I respectfully request authority to publish.

These corrections are the results of a trigonometrical survey.

Very respectfully, yours,

(Signed) A. D. BACHE,
*Super't U. S. Coast Survey.*

W. L. HODGE, esq.,
*Acting Secretary of the Treasury.*

SCHOONER BALTIMORE,
*San Francisco Bay, February* 28, 1851.

DEAR SIR: Under the head of the "Farrallones," in the sailing directions for the western coast, it is stated that "the southeast islet is the largest of the group, and is distant from the fort, at the mouth of the harbor, twenty-eight miles, and bears from the fort S. 68° W., true."

In the next edition of these directions the distance may be stated at 29.9 miles, and the true course from fort S. 75° 12′ W.

Adopting for the starting point the latitude and longitude of Fort Point, as given by Lieutenant McArthur in the published "tables," the latitude of the South Farrallon becomes 37° 41′ 37″, instead of 37° 36′ 30″; and the longitude of Point Lobos (the most western extremity) 122° 30′ 45″, instead of 122° 27′ 30″.

Very truly, yours,
(Signed) R. D. CUTTS,
*Assistant U. S. Coast Survey.*

Prof. A. D. BACHE,
*Superintendent U. S. Coast Survey.*

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## No. 4.

## HUMBOLDT, TRINIDAD, AND SAN DIEGO HARBORS.

Information in relation to Humboldt harbor, Trinidad bay, and San Diego harbor, and its approaches, contained in a letter from the Superintendent of the Coast Survey to the Secretary of the Treasury, and published by authority of the Treasury Department.

TREASURY DEPARTMENT, *October* 6, 1851.

SIR: Agreeably to the request in your letter of the 29th ultimo, you are authorized to publish the information to which you refer in relation to certain harbors on the western coast of the United States.

Very respectfully,
(Signed) THOS. CORWIN,
*Secretary of the Treasury.*

Prof. A. D. BACHE,
*Superintendent of the Coast Survey,*
*Washington, D. C.*

OSSIPEE STATION, NEAR ALFRED, MAINE,
*September* 29, 1851.

SIR: The following information in regard to Humboldt harbor, Trinidad bay, and San Diego harbor, and its approaches, has been received from Lieutenant Commanding James Alden, U. S. A., Assistant R. D. Cutts, and Sub-assistant A. M. Harrison. I would respectfully request authority for its publication.

*Trinidad and Humboldt bays* have been surveyed, and the charts will be ready to forward by the 1st proximo.

The first named is a very convenient and safe anchorage during six months in the year, and will be found by vessels that have suffered from the strong head (northerly) winds that prevail along this coast, a comfortable harbor of refuge.

*Humboldt bay* is, I think, the third harbor on this coast; it is sixteen miles long, and from three-quarters to four or five miles wide. The entrance between the breakers is nearly straight, but rather along the coast; it is about a mile long, and two hundred metres wide, between the eighteen feet curves on either side, with twenty-one feet at low water on the bar. It is perfectly accessible, except in very heavy weather, when, I am informed, the sea breaks entirely across the entrance; but we had no trouble in getting in, and beat out against a very light air with little or no tide in our favor. We have made a very careful examination of it.

*San Diego bay.*—From the perfect shelter it affords from all winds, and the depth of its water, San Diego bay is considered, next to San Francisco, the best on the coast. That such a large volume of water should have such a small outlet is remarkable, as is also the very singular natural breakwater, Ballast point.

The port La Playa is situated on the western shore of the bay, about one mile and three-quarters from the entrance.

The anchorage is in between nine and ten fathoms. The custom-house is placed here, and it is also the place where the mail-steamers stop. An excellent road leads from La Playa to old San Diego, which is a small town of a few adobe houses, and unapproachable by water, even in boats.

New San Diego, now about a year old, is situated on a plain at the base on the east side of the bay. It consists of a few American built houses and a large storehouse for the quartermaster's department.

The United States military depôt is established there. A channel runs in a curve from La Playa to New San Diego, and vessels can carry six to seven fathoms water. Both new San Diego and La Playa are dependent upon the river at old San Diego for their water. Between the above named channel and old San Diego are large flats, mostly covered with grass, and partly bare at low tide. The most important subject, however, connected with the bay, is the effect of the debouchement of the San Diego river, bringing with it, when high, (in the rainy season,) great quantities of sand directly into the channel.

It is believed, and apparently with reason, that unless the course of the river be changed, the channel will be filled, which will have the effect, I think, of not only cutting off communication with New Town, but also of destroying the bay entirely as a harbor; for it appears that nothing keeps the bay open but the great amount of water flowing in and out at the entrance; and when the channel is closed the greater part of the bay is out, leaving an insufficient amount to keep the entrance clear. A bar would doubtless form across the mouth, and the bay will gradually fill up.

That the river does bring sand into the bay is asserted by the deputy collector of this place, and others who have the means of knowing; and farther, it is known that vessels at one time could anchor in False bay, but the river flowing into it destroyed it by filling it with sand; and it then turned its course into San Diego bay.

If such be the facts, and I can see no reason to doubt them, the only remedy for the evil is to turn the river into False bay again.

This is an excellent harbor, and its loss would be severely felt.

Respecting the tides, Mr. Gray gives the average as six feet, which is approximately correct. The pilots tell me that the tides vary in their rise and fall from nine feet (spring tides) to three and a half during the year.

About two-thirds of the way from the Playa to the end of Ballast point, is a shoal, having nine feet of water at low tide, but lately discovered.

*Sailing directions for San Diego.*—Vessels in sight of the coast, and approaching San Diego from the north, will observe an opening in the hills and the appearance of an inland bay. This is the "False port," and must be avoided. Immediately north of "False port" commences a table land about four hundred and fifty feet high, and extending southwardly six or seven miles. The extremity of this table land is called Point Loma, and forms the entrance to the harbor of San Diego.

Those bound from the southward will first sight the group of high, rocky islets, called "Los Coronados." From thence to Point Loma the course is N. ½ E., and the distance fifteen nautical miles. On a clear day, "Los Coronados" will serve as a land mark and guide for vessels coming in that direction.

Steer right through the kelp, giving Point Loma a berth of one half mile, and in a few minutes you will open Ballast point, a low beach of shingle stones forming a natural breakwater. Then round up gradually, until you bring Ballast point in range with the easternmost house on the Playa, *and be very careful not to open more of the village*, otherwise you will be too far to the east, and in danger of getting aground on Luningo shoal. The breakers show its position. During the summer keep as close to the hills, on the port side, as your draught of water will allow, as you will then be able to lay on the wind right up to Ballast point. You can carry four fathoms within a ship's length of the point. Keep on the above range, and, when up with Ballast point, steer direct for the Playa, and anchor as you please.

Inside of the breakwater, and about two hundred and fifty yards true north of its extremity, is a shoal spot with twelve feet water at low tide. The shoals on the starboard hand are plain in sight, except at very high water.

Beyond the Playa the shoals are easily distinguished. The channel, however, is buoyed. From the Playa to New Town, four miles distant, you can carry six fathoms of water. A mile or two beyond New Town the bay becomes shoal.

Very respectfully, yours, &c.,

(Signed) A. D. BACHE,
*Superintendent.*

Hon. Thos. Corwin,
*Secretary of the Treasury.*

## No. 5.

## HUMBOLDT HARBOR AND TRINIDAD BAY.

Extracts from a letter of Lieutenant Commanding James Alden, U. S. N., assistant in the Coast Survey, to Professor A. D. Bache, Superintendent, relating to Humboldt harbor and Trinidad bay, California.

U. S. Surveying schooner Owen,
*San Francisco, August* 31, 1850.

Dear sir: * * * * * * *

We left San Francisco on the 24th of June, and, after an exceedingly boisterous passage of ten days, arrived at Trinidad.

This anchorage is, during six months of the year, perfectly safe and comfortable. It is some twenty miles to the northward of the entrance to Humboldt, and as the wind was unfavorable for us to go there at the time, we employed ourselves, during the detention of two or three days, in making a chart of the bay. It is sent with the others, and I hope it will meet with your approbation. The mines in the vicinity of Trinidad have made it an important location; it serves as a resting place for the miners, and is the source whence all their supplies are derived.

There are about one hundred houses in the village, and the land in the vicinity, for agricultural purposes, can hardly be surpassed. The gigantic red wood abounds there in all its magnificence, always affording to the hardy settler the readiest and most lasting material for neat and appropriate buildings. The fibre of this wood is so straight and so easily separated that it is split with comparatively little trouble into all the different forms required for an unpretending dwelling in a new country. The depredations of the Indians in that quarter have been, I am sorry to say, a serious drawback to their farming operations; so much so, indeed, that most of them have been compelled to leave their all, and go into the town for protection.

On the 10th July we left Trinidad with a fair wind, and in a few hours were at anchor in Humboldt bay. We were employed about four weeks in making the survey of that place. Finding it much better in every respect than it had been represented, I gave it more care, and made a closer examination of it, than an ordinary reconnoissance required. * * * * * * *

This body of water partakes more of the character of a lagoon than an ordinary bay. It is sixteen miles long, and from one to five broad. It is broadest at either extremity, where it is but a great grassy flat, washed with about one foot of water, (when the tide is out,) and broken here and there by navigable sluices. The entrance is practicable, except in very bad weather, when the sea breaks entirely across it. There is twenty-one feet on the bar at low water, and the ordinary strength of the tide does not exceed two knots. Under unfavorable circumstances, at low water, and with a very light breeze blowing directly in the channel, this schooner went to sea without difficulty. The two sea walls or narrow necks of land, which so nearly shut out the sea, are covered with sand hills ranging from ten to forty and fifty feet in height. On the north spit I have marked the place where, I think, the light-house should be located. It is the nearest point to the entrance, and is therefore less liable to be obscured by fog; and with a beacon further back, the two would form the best range to pass between the north and south breakers; not that it should be attempted at night, unless under the most favorable circumstances. As Humboldt is rather out of the way of vessels passing up and down the coast, I have thought that a light of the second or third class would answer all the purposes required at that point, and be sufficiently large for vessels bound in to maintain their position during the night. The country is hilly, almost mountainous, in the vicinity of Humboldt. The fir and the red wood predominate in the forests, and I am informed that the land possesses every requisite for farming purposes. The cattle luxuriate the year round in green grass and the tallest clover I ever saw. The temperature is very equable; they have a slight frost in the fall, and the winter only differs from the summer in being more pleasant. Elk and deer are found in abundance, and many varieties of wild fowl frequent the bay. There are no less than four villages or settlements on the bay. *Humboldt*, at the entrance, has thirteen houses; *Eureka* as many; *Bucksport* is just taking a start, and its location is thought to be superior to all the others, from the fact that it has better water and more room for commercial purposes; *Uniontown* is the largest, having about one hundred houses. It is located in the north end of the bay. Its proximity to the mines is the only advantage it has over the others, while the difficulty of transporting supplies from the depôt at Eureka seems to be almost an insurmountable objection to its ever becoming a place of much importance.

Every thing has to be carried in small boats up a narrow sluice, and that only at high water, while the nearest point of water communication is a mile from the town. A road can be cut from either of the other towns to communicate with the one from Union to the mines, with but little expense or trouble.

I am, sir, very truly and respectfully, yours, &c.,

(Signed) JAMES ALDEN,
*Lieut. Comd'g U. S. N., and assistant Coast Survey.*

Prof. A. D. Bache,
*Superintendent U. S. Coast Survey.*

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## No. 6.

## TABLE OF LATITUDES AND LONGITUDES

Computed from observations of Geo. Davidson, esq., assistant in the Coast Survey, and published by authority of the Secretary of the Treasury.

| | Latitude. | Longitude. | When published. |
|---|---|---|---|
| Point Conception, California....... | 34° 26′ 56″ | 120° 25′ 40″ | March 27, 1851. |
| Point Pinos, do........... | 36° 38′ 00″ | .............. | Nov'r 14, 1851. |
| Point Loma, near San Diego, California. | 32° 40′ 13″ | | |

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## No. 7.

## COAST OF CALIFORNIA.

Report of Lieutenant Washington A. Bartlett, United States Navy, assistant in the Coast Survey, to the Superintendent, on the general character of the coast of California.

Washington, *January* 6, 1851.

Sir: In answer to your several inquiries of the 31st ultimo I have the honor to state, that the general character and configuration of the coast of California exhibits bold precipitous cliffs, variable in height, occasionally interrupted by sand and shingle beaches. In some places the shore-line, even where faced by cliffs, is also a flat sand beach, but in such cases narrow, and entirely washed by a full tide.

On all parts of the coast vessels may approach within a very short distance of the beach, without encountering any dangers not visible to the eye, except that of being hove upon the beach by the swell, if the failing of the wind should leave the vessel becalmed.

The hill tops are generally rolling, but at times present long ranges of slightly inclined plains or tables, partially covered with gigantic red wood timber. Wild oats and rich grasses are abundant on all the hills and forest openings of the coast range.

The islands which lay off the coast, between Point Conception and San Diego, are not yet determined in position with any very close approach to accuracy.

They are large and conspicuous objects to the navigator in clear weather, but require more thorough examination and determination. They are as follows: Santa Rosa, or Miguel, San Bernardo, Santa Cruz, Saint Nicholas, Santa Barbara, Santa Catalina, San Clemente, or Salvador, San Juan, and the Coronados isles.

Several of these islands have islets in their vicinity, and there are reefs and detached rocks reported in several places within their range.

Whether these reefs and islets are the *same*, being variously placed by navigators, assigning them erroneous positions on the crude charts of that coast which have been in general use by the coasters, or whether they are more numerous and dangerous than they appear on the general charts of the latest publication, is yet to be ascertained.

*There is no part of the coast of the United States that requires an immediate and thorough examination, with all the means at the command of the Coast Survey, more than that part included between Monterey and San Diego.*

Our late reconnoissance to the northward shows how indeterminate have been previous authorities, and how very much superior it is to previously conceived notions.

To the southward and eastward of Point Conception the islands of San Bernardo, San Miguel, and Santa Cruz form the western border of the Santa Barbara channel or sound. This is the route of the coasting trade and Pacific mail steamships generally.

The light-house proposed to be erected on Point Conception will be of great benefit to this trade.

In consequence of fogs and haze the point (which is bold and clear of danger,) must be made, in order to shape a course with certainty through the channel or sound of Santa Barbara.

The island of San Bernardo lies nearly due south of Point Conception, distant 30 miles; "San Miguel" 33 miles S. E., (compass,) and "Santa Cruz" 33 miles E. S. E., and eleven miles south of the anchorage of Santa Barbara.

The coast is clear of dangers, both in the main land and the eastern shore of the island. Navigators prefer to take the channel, in consequence of reported reefs and shoals to the westward of San Miguel and north of San Nicholas.

There is no doubt such do exist, and are, as yet, very uncertain in position.

The light-house for Point Conception should be as near the shore as possible, having regard to height for sea view. This light should be seen ten to eleven leagues, and be of the 1st class.

A position can be had for Conception light which will not require a tower higher than those on Navesink.

Beginning with the light at the Farrallon off San Francisco as a fixed light, I would recommend the following order to the southward.

Monterey, a revolving light.

Point Conception, fixed light.

San Diego, revolving light.

As the above will be all the main sea-lights, they should be of the first class.

All other lights which the future wants of commerce may require in this district will only be secondary or local lights.

Respectfully submitted by your obedient servant,

WASHINGTON A. BARTLETT,
*Lieut. U. S. Navy, and Assistant Coast Survey.*

Prof. A. D. Bache,
*Supt. U. S. Coast Survey.*

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## No. 8.

## COLUMBIA RIVER, OREGON.

Report of Professor A. D. Bache, superintendent of the U. S. Coast Survey, to the Secretary of the Treasury, containing sailing directions for entering the Columbia river, Oregon.

Coast Survey station,
*November 29th,* 1850.

Sir: I have the honor to communicate the first of a series of hydrographic notices of the western coast, from Lieut. Commanding W.

P. McArthur, U. S. N., assistant in the Coast Survey, and would respectfully request authority to publish it. The chart of Columbia river entrance, from a preliminary survey, has been received, and is reducing for the engraver, and will be published speedily. This notice contains sailing directions for entering the river.

Very respectfully, yours,

(Signed) A. D. BACHE,

*Superintendent U. S. Coast Survey.*

Hon. THOS. CORWIN,

*Secretary of the Treasury.*

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Sailing directions for entering the Columbia river, as far as the harbor of Astoria, by Lieut. Commanding W. P. McArthur, U. S. N., assistant in the Coast Survey.

It is best under all circumstances to have a pilot; but should it be necessary to enter the river without one, the directions for the *north channel* are, first, bring Sand island in range with Point Ellice, and stand in towards Sand island, passing the south end of the north breaker; when Cape Disappointment and Leading-in-Cliff are in range, haul up towards the cape, keeping Leading-in-Cliff in range, until nearly abreast the cape. Give the cape a small berth, and continue on towards Baker's bay, until the second island in the bay can be seen; then keep off, and with second island and cape in range astern, it will pass clear of the north part of the middle sands. As soon as the soundings shoal on this course, keep off towards Sand island, and, passing close by the east end of the island, get the beacon on the island in range with a tree on Cape Disappointment, (which is trimmed up like an umbrella,) and with that range astern, stand on up the bay until the custom-house is on with Young's point, when haul to the east, and keep the last range on till nearly up with Young's point. Pass along the south shore, running by the lead until up to Astoria.

To enter the *south channel*, bring the beacon on Sand island to bear north 40° east, (true,) and Point Adams on the peak, which can be seen east of Point Ellice, and called "Jim Crow,) (upon which there is a notable tree,) nearly in range; the vessel will then be on the bar in the best water. Steer for the beacon, taking care not to sag to the *eastward;* rather keep close to the breakers on the Sand island shore.

Pass close to Sand island, and fall into the range of the beacon with the trimmed tree on Cape Disappointment, and proceed as already directed.

The best time for entering is on the first or last of the *ebb tide*. The last of the ebb tide is preferable in either channel.

## No. 9.

Notes on the new chart of Columbia river, from a preliminary survey by Lieut. Commanding W. P. McArthur, U. S. N., assistant in the Coast Survey.

U. S. Surveying schooner Ewing,
*San Francisco, September* 25, 1850.

Sir: * * * * * * * * * *

When comparing our chart with that of the Exploring expedition, the changes of the channels and shoals at the mouth of the Columbia river will be found to be numerous and considerable. Sand island is nearly a mile further to the westward than it was in 1840–'41. The north channel seems to be gradually filling up, whilst the new south channel is becoming both larger and deeper. This change will go on until some violent storm will throw up the sand again, and upon subsiding, leave the water of the river to find a new channel.

I have examined all the charts that have been made of the Columbia river, from the time of its discovery to the present, and find that there have been continued changes going on, *but at all times has there been a good deep channel* at the mouth of this river. To these changes in the channel is to be attributed the great dread which navigators have had of the Columbia.

There is now a good pilot at the mouth of the Columbia, and I have recommended a light-house on Cape Disappointment, and five buoys, to be placed in such a manner as best to point out the channel. I would also recommend that these be placed under the superintendence of the pilot, who will always know when any change in the channel takes place, and he can move them to such positions as he might think best. By this means, the dangers and delays attending the navigation of the Columbia would be vastly diminished.

The greatly increasing commerce of Oregon demands that these improvements be made immediately; the more especially, since the Columbia is the most important portion of Oregon for the pursuits of commerce.

After crossing the bar, there is a good, unobstructed channel for ships, up as far as Astoria; beyond which, Tongue point bar presents quite a serious obstacle to vessels drawing sixteen or even fifteen feet water. The channel over this bar is very crooked and shallow; vessels seldom pass it without delay. Once beyond Tongue point bar, vessels can easily go up the Columbia as far as Fort Vancouver, on the Columbia, and Portland, on the Willamette river. I am of the opinion, however, that the time is at hand when the navigation of the Columbia river will be conducted by steam vessels, as far down as Astoria.

The harbor of Astoria is perfectly safe and capacious; abundance of wood and water can easily be procured. The holding ground is good.

Within the last eighteen months more vessels have crossed the Columbia river bar than had crossed it, perhaps, in all time past; and during that time no vessel has received the slightest injury, and but few have met with much delay.

I would request that our chart of the Columbia may be published as soon as practicable.

I am, very respectfully and truly, yours,
(Signed) WM. P. McARTHUR,
*Lieut. Com'g and assistant U. S. Coast Survey.*

To. Prof. A. D. BACHE,
*Superintendent U. S. Coast Survey,*
*Washington, D. C.*

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## No. 10.

Report of Professor A. D. Bache, superintendent of the U. S. Coast Survey, to the Secretary of the Treasury, in relation to the draught of vessels which can enter Columbia river, Oregon.

WEBB'S HILL, *December* 3, 1850.

SIR: I have the honor to communicate a second hydrographical notice in regard to the western coast, and to request authority for its publication. It is contained in a report by Lieutenant Washington A.

Bartlett, U. S. Navy, assistant in the Coast Survey, and refers to the south channel at the entrance of Columbia river, Oregon.

Yours, respectfully,
(Signed) A. D. BACHE,
*Superintendent, &c.*

Hon. Thos. Corwin,
*Secretary of the Treasury.*

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Report of Lieutenant Washington A. Bartlett, U. S. Navy, assistant in the Coast Survey, in relation to the draught of vessels which can enter the south channel, Columbia river entrance, Oregon.

Washington, *November* 30, 1850.

Sir: In answer to your inquiries as to the draught of vessels which may at any time be carried into the Columbia river by the new south channel, I have to state, that our late survey of that channel, and my personal experience in passing over the south bar in vessels of deep draught, show conclusively, that vessels drawing seventeen feet can be taken over the south bar at ¼ flood or ¾ ebb, without the least risk of touching, and twenty feet can pass at high water.

In making the preceding statement, it is proper to state that I have fully considered the "drop" which a vessel makes when in the swell of the bar, which is, however, much less in the south than in the old north channel, when the wind is in the usual northwestern quarter.

In the winter or spring seasons, when the wind is in the south or southwest quarter, there is a lively breaker on the south bar, at which time it will be smoothest on the north bar, and this southerly wind being fair for the north channel, there is no occasion to take the south bar in *southerly winds, going in;* yet, with a moderate draught in a *sailing* vessel, the south channel is ever safest in coming out, although the wind may be "dead in" to the bar; the bar being so short and quickly passed, that it is not necessary to tack in shoal water.

The U. S. steamer Massachusetts, and U. S. sloop-of-war Falmouth, each drawing 17 feet water, have passed the bar of the south channel into the Columbia river since our survey was made.

In addition, I would state, that my experience at the mouth of the Columbia has convinced me that the south channel is the practical commercial channel of that river for certainty and safety, with the additional advantage of accomplishing the passage, to or from the river, without waiting for a particular wind. Ships frequently pass the bar inward in fifteen minutes after receiving their pilot, and outward in thirty minutes after getting their anchors.

A disabled ship that can be sailed so as to have good steerage way, can pass over the south bar in safety, when it would be impossible to get her in by the north channel.

From the 18th of April to the 5th of August, 1850, there was no day that the south channel was not practicable for vessels, and it was in daily use.

I crossed the bar, (south channel,) in the pilot boat "Mary Taylor," during the "heaviest bar" that occurred within the above named period, beating out with the wind ahead.

The principal pilot of the bar is Captain White, late pilot of New York harbor; he is very intelligent and competent to his duties, and no accident has occurred at the mouth of the Columbia since September, 1849, when he commenced his duties as pilot.

The commerce of the Columbia river, the great artery of the fertile valleys of the Columbia and its tributaries, is rapidly increasing; the Pacific Mail Steamship Company's steamers now proceed to *Astoria,* and return to San Francisco with the monthly mails. A small steamer has been built at Astoria, and is now employed in the river trade. A second steamer was on the stocks when we left the river.

Regular lines of sailing and steam-propeller vessels are also established between San Francisco and the various towns on the Columbia; also to Nisqually and other points in Puget's sound.

For further particulars I have the honor to refer you to my report of June last.

Very truly, your obedient servant,
(Signed) WASH'N A. BARTLETT,
*Lieut. U. S. Navy, Assis't Coast Survey.*

Prof. A. D. Bache,
*Supt. U. S. Coast Survey.*

## No. 11.

## COMMERCE OF COLUMBIA RIVER.

Letter of the Superintendent of the Coast Survey to the Secretary of the Treasury, communicating a letter from Lieutenant W. A. Bartlett, U. S. N., assistant in Coast Survey, relating to commerce in Columbia river.

Coast Survey office, *Feb. 26th,* 1851.

Sir: I have the honor to send herewith a letter from Lieutenant Washington A. Bartlett, U. S. Navy, assistant in the Coast Survey, enclosing a list of vessels which have crossed the bar of the Columbia river during the year 1850. I respectfully request that it may be communicated to the Committee on Finance and Commerce of the Senate, and Committee on Commerce of the House of Representatives.

Yours, very respectfully,

(Signed) A. D. BACHE,
*Superintendent U. S. C. S.*

Hon. Thomas Corwin,
*Secretary of the Treasury.*

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National Hotel,
*Washington, February 24th,* 1851.

Prof. A. D. Bache,
*Superintendent Coast Survey.*

Dear sir: I herewith enclose a list of vessels which have crossed the bar of the Columbia river, Oregon territory, during the year 1850. I received it this evening, direct from the United States collector at Astoria.

By this list you will perceive, that while the large number of 160 sail of ships, barques, brigs, and steamers, have safely crossed the bar of the Columbia river during the year, no less than one hundred and fifty-four sail have entered and departed by the new south channel, which was surveyed by the late Lieutenant Com'g W. P. McArthur, U. S. N., and myself, under your direction, the past season; the chart of which is now being engraved.

This list of vessels embraces a fleet of over eighty thousand tons burthen, which, in one year, have entered and cleared at the custom house at Astoria, without a solitary accident, or loss of one dollar to owners or insurers by the passage of the bar.

It is very doubtful whether the commercial statistics of any other port of equal commerce can show such an exhibit.

Of the sixteen passages made through the old north channel, all but three were made by steam vessels; which fact has fully demonstrated two things, *first*, that the prediction long since made that steam would certainly and safely open the navigation to the Columbia; and, *secondly*, that our reports of the past summer, that the *south channel* is the *practical commercial channel* of the river, is fully established to be correct by the showing of the pilots, they having taken *one hundred and forty sail* of sailing vessels through the *south channel*, while only *four* have passed through the north channel.

Since the publication of our sailing directions in June last, *ten sailing vessels have passed through the south channel* WITHOUT A PILOT!!

The pilots have taken 17½ feet draught over the bar of the south channel.

In view of these facts, and my experience of the want of the usual aids to commerce on this river, I have been addressed by a large number of the ship-masters and owners of vessels trading into the Columbia, to urge upon the proper departments of the Government the necessity of hastening the work of building the light-houses and placing the buoys already provided by act of Congress.

Also, that the growing commerce of the port of Astoria demands an immediate appropriation for a custom-house at that point, in order that the public business may be properly transacted. I have the honor, therefore, to request that copies of this communication be transmitted to the Secretary of the Treasury and Committee of Finance of the United States Senate.

In this connexion I may also mention, that I was this day informed by Mr. Preston, surveyor general for Oregon, that in consequence of the publication of my report, made to you in June last, of the safety of the south channel of the Columbia, the insurance companies of St. Louis at once took risks for the river at the same as for San Francisco. This is the direct influence of correct hydrographical information.

Sir, I have the honor to be,
With high respect, your obedient serv't,
WASHINGTON A. BARTLETT,
*Lieut. Com'g U. S. N. and assistant Coast Survey.*

## No. 12.

## SAN FRANCISCO BAY.

Report of Lieut. Commanding W. P. McArthur, U. S. N., assistant in the Coast Survey, to the Superintendent, inclosing a report of Lieut. Washington A. Bartlett, U. S. N., on the lights necessary for San Francisco bay, and its approaches.

United States surveying schooner Ewing,
*San Francisco, March* 31, 1850.

Dear sir: I have the honor to lay before you a copy of a letter from Lieut. Wm. A. Bartlett, U. S. N., expressing his views on the subject of light-houses, their situation and class, necessary to facilitate navigation in and at the mouth of this harbor.

You will see by my report, dated 29th instant, that I recommend three lights, placed as Lieut. Bartlett has recommended; but since he has gone into detail, and as he has cruised considerably in these waters, I cannot do less for his judgment and experience than to lay his letter before you; stating, at the same time, that I fully concur in his views.

Respectfully and truly, yours,
(Signed) WILLIAM P. McARTHUR,
*Lieut. Commanding, and Assist. Coast Survey.*

To Professor A. D. Bache,
*Superintendent U. S. Coast Survey,*
*Washington, D. C.*

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United States surveying schooner Ewing,
*San Francisco, March* 31, 1850.

Lieut. Com'ng Wm. P. McArthur, U. S. N.
*Assistant U. S. Coast Survey.*

Dear sir: My experience in and about the bay of San Francisco, since June, 1846, induces me to lay before you, for the information of the Department at Washington, my views on the character and arrangement of lights necessary to be adopted for the safety of the vast fleet of shipping entering and leaving this port.

1st. A revolving light of the *first power*, on the south "Farrallon de los Frayles," which island bears S. W. by W., (compass,) and distant 29.9 miles from the fort at the mouth of the harbor.

On this island should also be placed a heavy fog bell.

2d. A fixed *white* light, of a power not less than the light on Sandy Hook, to be placed on the height in the rear of the fort, at the entrance of the harbor.

3d. A red beacon light, visible for four leagues, to be placed on Alcatraz island, within the harbor.

The first named light, on the "Farallon de los Frayles," is of prime necessity, in order to enable vessels to approach the coast boldly and with safety, as this cluster of rocky islets and sunken rocks lie in the "fair way" to the harbor, and only six leagues S. 3° E. from "Punta de los Reyes," the most western land near San Francisco.

A fog bell is necessary, in consequence of the density of the fogs which prevail off the coast for a considerable portion of the year, and the difficulty of getting astronomical observations in a smoky haze, when there is no fog.

For the same reasons I would recommend that one or two thirty-two pounder guns be placed near the light-house, to respond to vessels which may fire guns, in order to learn their positions. This system of communication is practised at Monterey, between the "redoubt" and ships of the squadron, (when in the fog of that port,) with the best results.

The fixed light on the height, in the rear of the fort of San Francisco, will point out the entrance of the harbor, when vessels have lost sight of the light on the Farrallon, and enable them to correct their bearings, (which are always more or less affected by tides and currents in the outer bay,) before reaching the bar. By this time the beacon light on Alcatraz island, (being red,) will give a sure leading mark for cross ing the bar in the best water, avoiding the reef of Boneta point, and enabling a ship to keep on the proper line of sailing at any time when the state of the tide and wind permit her to proceed.

The beacon light on Alcatraz is also absolutely necessary to the safety of shipping and steamers navigating within the bay in the night, and will give all necessary leading marks to clear "Blossom rock" and "Southampton shoal."

As the South Farrallon has an eminence at each extremity, (being about one mile in length,) on which a tower can be placed, the base of which will be at least one hundred and fifty feet above water, the height of the tower below the lantern need not exceed fifty feet, (visible 18.7 miles.)

Towers of fifty feet in height below the lanterns will also be sufficient for both the other lights, as the base of the tower on the hill in the rear of the fort will be at least two hundred feet above water, and that on Alcatraz eighty to one hundred feet.

It would appear proper to remark, that, inasmuch as these towers, with their lanterns and apparatus, must be prepared and shipped from the Atlantic coast, the most economical and durable material should be used. Boiler-plate iron would seem to be the very best for the purpose, while the framing and staircases should be made of the same imperishable material.

Respectfully submitted by your obedient servant,
(Signed) WASHINGTON A BARTLETT,
*Lieut. U. S. Navy, Assist. U. S. Coast Survey.*

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## No. 13.

## LIGHT-HOUSES, SAN FRANCISCO BAY.

Letter of the Superintendent of the Coast Survey to the Secretary of the Treasury, transmitting the report of R. D. Cutts, esq., assistant in the Coast Survey, with sketches of his survey of Fort point, at the entrance to San Francisco bay, and of Alcatraz, or Bird island, within the bay, proposed as sites for light-houses.

Coast Survey office,
*February* 13, 1851.

Sir: I have the honor to transmit a report by Assistant R. D. Cutts, of the Coast Survey, with sketches of his survey of Fort point at the entrance to San Francisco bay, and of Alcatraz, or Bird island, within the bay, proposed as sites for light-houses, in the bill passed at the last session of Congress. The complete drawings which Mr. Cutts forwarded by Adams & Co's express, have not come to hand, but the report and sketches of the sites, with a tracing from the chart of the bay, which shows the relative positions of the points, will supply the information essential to the action of the Department. When the complete drawings are received I will replace these sketches by copies of them.*

I have examined and confirm the recommendations made by Mr. Cutts, in his report; nor have any facts come to my knowledge from inquiries made of Lieut. Patterson, U. S. Navy, formerly attached to the Coast Survey, who has commanded the mail steamer Oregon, plying on the western coast; of Lieut. Bartlett, recently engaged in the hydrography of the western coast, and of Passed Midshipman McLean, second officer of the mail steamer "Panama," and recently attached to the Coast Survey, to indicate the location already adopted for lights at the entrance of San Francisco bay, (the South Farrallon, Fort point, and Alcatraz island,) should be altered.

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* The drawings were subsequently sent in.

I respectfully recommend for the light on Fort point one of the second order, (French system,) or its equivalent, and for the one on Alcatraz island one of the fourth order, or its equivalent.

Very respectfully,
(Signed) A. D. BACHE,
*Superintendent U. S. Coast Survey.*

Hon. THOS. CORWIN,
*Secretary of the Treasury.*

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SAN FRANCISCO BAY,
*December* 27, 1850.

DEAR SIR: In conformity with your instructions of October 5th, directing that light-house surveys should be my first and immediate duty, upon arriving at San Francisco, I have to report that I have made the necessary examinations and surveys of Alcatraz island and Fort point, in the bay of San Francisco, the results of which, and sketches on a scale $\frac{1}{10000}$, are herewith forwarded.

The magnetic course of Alcatraz island from Fort point is N. 53 E., say N. E. by E., which is the best range for crossing the bar, and for passing between Points Lobos and Boneta. The Farrallones are visible from Alcatraz. The three localities therefore appear to be well selected, and when the lights are erected every desirable object will be accomplished.

Alcatraz, or Bird island, is a large rock rising to an elevation of one hundred and thirty-five feet above high water mark. Its greatest length and breadth are one thousand six hundred and seventy-three, and five hundred and ninety feet, respectively. The summit is rounded, and has a thin layer of soil, the rock itself being soft, friable, and easily excavated.

Deep water makes all around the island, and with the exception of at two or three particular places, the sides are so precipitous that a landing can be with difficulty effected.

Fort point is sixteen thousand seven hundred and ninety-eight feet, or three miles three hundred and nineteen yards, from Alcatraz island, and commands a full view of the entrance to the bay. The proposed site for the light-house is on an elevated and prominent point, (one hundred and seven feet above high water mark,) and which was formerly occupied as a Mexican fort.

The sites for the light-houses are marked in the sketches by a circle in red ink.

Fort point belongs, by reservation, to the United States. Alcatraz is claimed by purchase from Mexican grants by Col. J. C. Fremont.

| | Height of lantern above base. | Height of base above high water mark. | Height of lantern above high water mark. | Distances at which lights would be visible clear weather, nautical miles. | Statute miles. |
|---|---|---|---|---|---|
| Alcatraz island.......................... | 20 feet | 135 feet | 155 feet | 17 miles | 21 |
| Fort point.................................. | 20 feet | 107 feet | 127 feet | 15 miles | 19½ |

I am, &c., yours, truly,
RICHARD D. CUTTS,
*Assistant C. Survey.*

To Prof. A. D. BACHE,
*Superintendent U. S. Coast Survey,*
*Washington, D. C.*

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## No. 14.

Correspondence of the Superintendent of the Coast Survey with the Secretary of the Treasury, in relation to buoys for sunken rocks in the harbor of San Francisco, reported by the collector of that port.

TREASURY DEPARTMENT,
*July* 21, 1851.

SIR: The enclosed letters from the collector of San Francisco, requesting that buoys be placed over two sunken rocks therein mentioned, are transmitted for your views on the subject.

You will please return the letters with your report, and if any report shall have been made to you by the officers of the Coast Survey in California, I will thank you to furnish a copy for the Department.

Very respectfully, your obedient servant,
W. L. HODGE,
*Acting Secretary of the Treasury.*

Prof. A. D. Bache,
*Superintendent Coast Survey.*

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Collector's office,
*Custom-house, San Francisco, June* 7, 1851.

Sir: I have the honor to enclose a copy of a letter I have addressed to the Hon. Stephen Pleasonton, fifth auditor, requesting authority to procure two buoys to place on two sunken rocks, very dangerous to vessels navigating the waters of this bay. It is of great importance that these dangerous rocks should be indicated to navigators, and I trust the requisite steps may be taken as promptly as possible.

I have the honor to be, with great respect, your obedient servant,
(Signed) T. BUTLER KING,
*Collector.*

The Hon. Thomas Corwin,
*Secretary of the Treasury, Washington city.*

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Collector's office,
*Custom-house, San Francisco.*

Sir: There are two sunken rocks in the straits between the bays of San Francisco and San Pablo, which are very dangerous to navigation, being directly in the track of vessels navigating these waters. Application has been made to me to have buoys placed upon them, and the officers engaged in the Coast Survey are ready to place buoys wherever they can be procured. Under these circumstances, please authorize some person to procure buoys to mark these dangerous hindrances to navigation.

Very respectfully, your obedient servant,
(Signed) T. BUTLER KING,
*Collector.*

The Hon. Stephen Pleasonton,
*Fifth Auditor, Treasury Department,*
*Washington city.*

Coast Survey station,
*Mt. Pleasant, July* 25, 1851.

Sir: I have the honor to acknowledge the receipt of your favor of the 21st instant, relating to buoys to be placed upon two sunken rocks in the bay of San Francisco, and requesting to be furnished with the information communicated to the superintendent by the officers of the Survey.

In reply, I have the honor to state, that Lieut. Comg. Jas. Alden, U. S. N., assistant in the Coast Survey, and chief of hydrographic party on the western coast, under date of June 14, informed me that he has received numerous applications to place buoys on the Invincible and Blossom rocks, in the harbor of San Francisco, and that he considers it very necessary to the safety of navigation that buoys should be placed upon those dangers.

Fully concurring with Lieutenant Alden in his opinion, I would respectfully recommend that the necessary means may be furnished to the collector of the port of San Francisco, or to the Superintendent of the Coast Survey, from any funds the Department may have available for the purpose, to have the buoys procured and placed.

I return herewith the letters of Mr. King, the collector, as you request.

Yours, respectfully,
(Signed) A. D. BACHE, *Superintendent.*

Hon. W. L. Hodge,
*Acting Secretary of the Treasury.*

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## No. 15.

## HUMBOLDT BAY, CALIFORNIA.

Report of the Superintendent of the Coast Survey to the Secretary of the Treasury, on the necessity for a light-house at Humboldt harbor, California, with the report of Lieutenant Commanding James Alden, U. S. N., assistant Coast Survey.

Coast Survey office,
*November* 19, 1851.

Sir: I have the honor to report, in conformity with the law, approved March 3d, 1851, and the instructions of the Treasury Department, that the examination of the necessity for a light-house at Humboldt harbor, California, has been made, and the following is the report of Lieutenant Commanding James Alden, U. S. N., assistant in the Coast Survey, by whom the examination was made; a sketch of the reconnoissance is herewith enclosed.

"On the north spit I have marked the place where I think the light-house should be located. It is the nearest point to the entrance, and is therefore less liable to be obscured by fog; and with a beacon further back, the two would form the best range to pass between the north and south breakers; not that it should be attempted in the night, unless under the most favorable circumstances. As Humboldt is rather out of the way of vessels passing up and down the coast, I have thought that a light of the second or third class would answer all the purposes required at that point, and be sufficiently large for vessels bound in to maintain their position during the night."

I concur with Lieutenant Commanding Alden in the recommendation of a light of the third order, with a beacon light in rear to give a range.

The Department will decide whether authority exists to put up the proposed beacon, as well as the light-house, and if not I would respectfully request that an appropriation for it may be asked.

The tower of the light-house should be about twenty feet high, and the beacon be so placed that it will be still visible when running on the range line. It should be constructed so as to be moved without difficulty in case of a change in the interior.

Very respectfully, yours, &c.,

(Signed) A. D. BACHE,
*Superintendent.*

Hon. Thos. Corwin,
*Secretary of the Treasury.*

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## No. 16.

Letter of the Superintendent of the Coast Survey to Hon. Joseph Grinnell of the Committee on Commerce of the House of Representatives, communicating a report of Lieutenant Bartlett, U. S. N., assistant Coast Survey, on the importance of a light-house at Humboldt harbor.

Coast Survey office,
*January 24th,* 1851.

Dear sir: I herewith transmit, for the information of the Committee on Commerce, a report in relation to the importance of a light-house at Humboldt harbor, California, by Lieutenant Washington A. Bartlett, U. S. Navy, assistant in the reconnoissance of the western coast

Yours, respectfully,

A. D. BACHE,

*Superintendent Coast Survey.*

Hon. JOSEPH GRINNELL,

*Of the Committee on Commerce.*

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WASHINGTON, *January* 24, 1851.

SIR: For information of the Committee on Commerce of the House of Representatives, on the importance of a light-house at *Humboldt harbor,* State of California, I have to state, that Humboldt harbor, although only *discovered* in April, 1850, is already a seaport of great commercial importance in the coasting trade on the western coast.

Humboldt harbor is an extensive sheet of water of good depth, having an easily accessible entrance from the sea of about one mile in width.

The bar, having three fathoms at low water, is one and a half mile outside of the sand points, which form the entrance of the harbor.

The sea shore is low, the sea side of the harbor being narrow sand points, but slightly elevated above the sea, and hence a light-house is of the first importance to point out the entrance and proper bearing for crossing the bar. Large settlements, Humboldt, Eureka, and Union town have already been established on Humboldt bay, whence a road of forty miles communicated with the rich and extensive gold region of the Trinity and Klamath rivers.

The valley, which is watered by the streams which flow into Humboldt bay, is of exceeding fertility, and densely timbered with valuable forest trees.

The steam propellers from San Francisco to Oregon touch at Humboldt, and before a light-house can be built there will be a semi-weekly line of steamers between San Francisco and Humboldt.

The best position for the town can only be determined by a survey of the entrance.

Very respectfully, your obedient servant,

(Signed) WASHINGTON A. BARTLETT,

*Lieutenant U. S. N., assistant Coast Survey.*

Prof. A. D. BACHE,

*Superintendent U. S. Coast Survey.*

## No. 17.

# LIGHT AT POINT CONCEPTION, CALIFORNIA.

Report of the Superintendent of the Coast Survey to the Secretary of the Treasury, showing the most suitable site for a light-house at Point Conception, California.

Coast Survey office, *March* 13, 1851.

Sir: I transmit herewith a sketch of Point Conception, California, furnished by the officer of the Coast Survey, on that coast, for the purpose of showing the most suitable site for a light-house in that vicinity.

This is a steep rocky point, projecting into the sea, 240 feet high at the point selected for the site of the tower, 286 feet broad, 533 feet to the pitch of the point, and the whole length of the projection 832 feet.

It has been ascertained, by a careful examination and inquiry, that the point Arquillo to the northward is not the best location; all who have been consulted on the subject agree in recommending the point in the sketch ⊙ as the best position for the light. It will be seen from the accompanying tracing of the coast of California, on either side of Point Conception, that it trends about N. W. and S. E. A first order sea-coast light, with a lantern thirty or forty feet from the base of the tower, will be seen under ordinary circumstances twenty-five to twenty-eight nautical miles from the deck of an ordinary merchant vessel.

It is deemed highly important that this should be a light of the first class, according to the European classification, illuminating two hundred and eighty degrees of the horizon, to subserve all the purposes of navigation.

The light on Point Conception should be made a revolving or flashing light, to enable the proper distinctions to be made in those on either side, and nearest to it.

Very respectfully, yours,

A. D. BACHE,

*Superintendent U. S. Coast Survey.*

Hon. Thomas Corwin,
*Secretary of the Treasury.*

## No. 18.

## LIGHT AT POINT PINOS, CALIFORNIA.

Letter of the Superintendent of the Coast Survey to the Secretary of the Treasury, communicating the report of A. M. Harrison, esq., sub-assistant in the Coast Survey, on a site for a light-house on Point Pinos, California.

COAST SURVEY OFFICE, *March* 14, 1851.

SIR: I have the honor to transmit herewith a sketch of Point Pinos, near Monterey, California, the site recommended in the accompanying report for the light-house near Monterey, for which an appropriation was made at the first session of the 31st Congress. I concur in the recommendation contained in the report. The choice of the site between the three points designated, might be left to the engineer charged with the construction of the light-house.

Very respectfully, yours,

(Signed) A. D. BACHE,
*Supt. U. S. Coast Survey.*

HON. W. L. HODGE,
*Acting Secretary of the Treasury.*

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CAMP POINT PINOS, NEAR MONTEREY,
*Upper California, January* 28, 1851.

DEAR SIR: This report accompanies a tracing of the plane table map of *Point Pinos,* including the extreme end of the point and the vicinity towards Point Cypress on one side, and Monterey on the other, on a scale of $\frac{1}{10000}$. It gives the ground in the region of the most suitable position for a light-house, showing its character, elevation, &c.

Point Pinos is a pine-covered rock-bound projection of land, extending in a northwest direction from Monterey to the distance of about three miles, rising gradually from the water's edge, and, from its position, affording complete shelter from southeast winds to vessels at anchor off the town. The whole shore of the point, from near Monterey to Point Cypress, is very rocky, and, except in the calmest weather, there is a heavy surf from the swell of the ocean, rendering a landing in boats exceedingly dangerous, if not impossible

I have marked upon the tracings three positions, (A, B, C,) in each of which a light-house may be placed, each having its advantages.

(A.) As shown in the tracing is in the pines; its advantage over the other two being its elevation, but in order to be seen to the seaward, and by vessels leaving the harbor, it will require a great deal of clearing.

The ground is sandy and pretty firm.

(B.) This position is in the small sand hills. The site commands a fine view to seaward, and requires little if any clearing.

Judging from the nature of the point, it is to be presumed, that beneath the sand there is a rocky substratum for a foundation although it may be at a considerable depth.

(C.) Is the level surface of the rock covered with wild shrubs. Its foundation is good, but it is cut off from the main shore at high tide, the distance being 103 metres, (112.6 yards,) the islet is about 80 square metres (95 square yards) in area, and about ten feet above high water mark. The main objections to it, as a site for a light-house, consist in its small size, its isolation from the main land at high tide, and an uncertainty as to how long it will stand the force of the sea. It is exposed to the full violence of all seaward winds, and many of the rocks in the vicinity have been undermined and fallen. It is also possible that in severe gales the sea washes over it.

The distance at which the light from the lantern of a light-house 40 feet in height would be visible if placed on (A), would be 13 miles; (B,)11 miles ; (C,) 9 miles.

The sector of visibility of the light from seaward would be 110° from the south, round through the west, to north.

The line (x) shows the general run of the shore towards Monterey, and (y) towards Point Cypress.

I have before spoken of the difficulty of landing on the point, but the town is only about three miles distant, and there is a good road running to the end of the point.

Fine spring water can be obtained in the neighborhood, and the land is sufficiently rich for the purposes of cultivation almost any where on the western side of the point.

There is a quarry of course limestone near the town, but whether suitable for building purposes or not, I am not informed.

If it is proposed to erect a fog signal here, (and the fog is very frequent and thick in the winter,) there are many places on the rocks equally suitable for the purpose, as may be seen by a reference to the map. I have inserted the true and magnetic meridian; the former given by Assistant Davidson, and the latter obtained approximately by the compass attached to my plane table.

Very respectfully, your obedient servant,
A. M. HARRISON,
*Sub-assistant U. S. Coast Survey.*

Professor A. D. BACHE,
*Superintendent U. S. Coast Survey,*
*Washington, D. C.*

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## No. 19.

## POINT LOMA, NEAR SAN DIEGO, CALIFORNIA.

Letter of the Superintendent of the Coast Survey to the Secretary of the Treasury, communicating the report of Sub-assistant A. M. Harrison on a survey of Point Loma, near San Diego, California, for the location of a light-house.

COAST SURVEY OFFICE,
*November* 22, 1851.

SIR: In conformity with the instructions of the Treasury Department, I have caused a survey to be made for the site of a light-house at Point Loma, near San Diego, California, for which an appropriation was made by act of Congress, approved September 28, 1850. I send herewith a sketch showing the locality proposed for the light, and its relation to the harbor of San Diego and its approaches. Also a sub-sketch, on a large scale, giving the character of the site more in detail. In a few weeks an engraved harbor chart of San Diego will be transmitted, to take the place of these sketches, or as supplementary to them.

The light, which is recommended, is one of the first order, or a sea-coast light, to be placed on the bluff in the position marked, in a tower, say twenty feet high. The range will thus be 31.7 stat. miles, and the light will be visible beyond the Coronados, and over a section of the horizon of about 187°.

A small harbor light is further recommended on Ballast point, at the place marked in the sketch, as a leading light up the bay. Its elevation may be fifteen feet.

I append the report of Sub-assistant A. M. Harrison, by whom the plane table survey of Point Loma and its vicinity was made. The survey of the harbor was made by Assistant R. D. Cutts, of the Coast Survey.

The considerable height of the point at which this light-house is to be placed, induced me to withhold the report of Mr. Harrison, and any recommendation concerning it, until I had consulted him as to the probability of interference from fog. He re-affirms his opinion of the propriety of the site after considering this objection.

In recommending lights for the western coast, I have not advised that any of them be revolving lights, except in the case of Point Conception, conceiving that, at present, until facilities for repairs of machinery, and the number of lights are increased, it is inexpedient and unnecessary to resort to such a distinction.

Very respectfully, yours,
(Signed) A. D. BACHE,
*Superintendent U. S. C. S.*

Hon. THOMAS CORWIN,
*Secretary of the Treasury.*

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LA PLAYA, NEAR SAN DIEGO,
*California, June* 2, 1851.

DEAR SIR: This report accompanies a tracing from the plane-table map of the bay of San Diego, including Point Loma, the proposed light-house site, and La Playa, (the port of San Diego,) on a scale of $\frac{1}{10000}$.

Point Loma is a long narrow strip of land, extending in a southerly direction, about $2\frac{3}{4}$ miles from the Playa, and is composed of a chain of abrupt and broken hills, varying from 200 to 400 feet in height, cut with deep, narrow, and, in many places, precipitous gorges. On the western side the shore is perpendicular, and varies from 22 to 90 feet in height; while on the eastern shore, from the Playa to Ballast point, (a narrow low spit, formed of large pebbles, running out from Point Loma, and forming the western side of the entrance,) the shore is bluffy, and not generally as high as the opposite one. To the south of Ballast point the shore is still bluffy, and increases gradually until it reaches the extreme point. At this place the hills jut boldly upon the sea, forming a very steep bluff 300 feet in height. The hills are composed mainly of coarse modern sandstone, and are covered with a growth of low bushes, red wood, and artemisia, interspersed with three or four varieties of cactus.

Landing is practicable in calm weather at almost any part of the point; but the hills are so precipitous that it would be almost impossible to transport any building materials up their sides.

The position for a light-house which I have marked upon the chart by a black circle, I recommend for the reason of its superior elevation, the large view it commands to seaward, its good foundation, and its level surface. It is 422 feet high.

The distance at which the rays of light would touch the horizon of the ocean from a light-house 20 feet high, located at this site, would be 32.4 statute miles. It commands an extent of horizon to seaward of 187°.

In erecting a light-house on this point, the materials should be landed at the Playa, and then could be carried to the point along the top of the range of hills. There is a path extending the whole distance, and, with a little cutting of the bushes, it could be made practicable for mules. It would be necessary to bring the materials for building purposes from some other port, as there is nothing in this region which could be turned to advantage.

There is no water nearer than San Diego, five miles distant from the Playa. It is obtained from San Diego river, and brought down in casks.

Some men are at present boring an artesian well at the Playa; but success is very doubtful. The land is not favorable for cultivation.

The entrance to the bay is so narrow, and Ballast point is so low, that I think a secondary light on the end of it would be advisable. The extremity of the point is composed of large pebbles, similar to our paving stones at home, and the foundation is quite hard. I have marked the point upon the tracing.

Since our stay here fogs have been frequent and heavy, and I think it would be advisable to place a fog signal upon the bluff at the end of the point. If it is to work by the action of the waves, it could be placed upon a reef running S. by W. from the end of Point Loma, where there is always a swell, even in the calmest of weather.

Respectfully submitted.

(Signed) A. M. HARRISON.

Prof. A. D. Bache,
*Supt. Coast Survey, Washington, D. C.*

## No. 20.

Report of Lieutenant Washington A. Bartlett, U. S. N., assistant in the Coast Survey, to the Superintendent, in relation to a light-house at Cape Hancock, or Disappointment, entrance to Columbia river.

WASHINGTON, *November* 29, 1850.

SIR: In answer to your inquiries as to the character of the light-house which should be erected at Cape Hancock, or Disappointment, at the mouth of the Columbia river, Oregon territory, and for information as to the locality on which it should be placed, &c., I have the honor to state, that Cape Hancock, or Disappointment, at the mouth of the Columbia river, Oregon territory, where it is proposed, by a late act of Congress, to erect the principal light-house for that river, is a bold cliff of columnar basalt, rising perpendicularly from the sea to variable heights from 200 to 300 feet, terminating in unequal rolling summits, covered with a rich and fertile soil.

These summits vary also in width, from ten to fifty feet at the apex, whence they slope by a quick descent to the northward; the northern, or in-shore, face of the hills being covered by a dense growth of gigantic pine, alder, and other trees, with a thick growth of vines, "salmon berry," and other shrubbery.

The summit of the sea cliffs, (which are not covered by the forest,) is the proper position for locating the light-house, say within two to four hundred yards to the westward of "Broom station," as given in our triangulation of the river. Should the tower be placed there it will show the light from the lantern around three-fourths of the horizon, without the necessity of felling the trees to the northward.

In this position, the base of the tower will be about 250 feet above high water mark; and should the tower be raised 80 feet to the deck of the lantern, (and in my opinion it should not be less,) on a base of 25 feet diameter, it will be a prominent landmark for making the cape in the day time.

The lantern, or light, which is to be placed on the tower, should be of a power not less than the best light on Navesink; in other words, a marine light of the first power.

The tower should be constructed of fire-proof materials, and no wood whatever should be admitted into the construction of the building, as there is at all times much danger of the forest being fired to the northward, which, in such case, would inevitably destroy the building.

From the cove in Baker's bay, where the materials would be landed, the distance is about 1,000 yards by a path, now greatly obstructed by trees which have fallen across it. It must ever be a difficult matter to transport any great amount of bulk or weight to the summit; a good road must first be made. Whether the tower is constructed of wood, iron, or brick, the material must be transported in small parcels.

When such a tower as I have contemplated is lighted up by a light of the first power, it will be clearly visible for a distance of nine leagues at sea, from the N. W. by the W. and S. W. to the south, and by the east for the entire width of the river, and for the same distance up the Columbia.

A light on Cape Hancock, or Disappointment, will be of vast importance to the rapidly increasing commerce of Oregon, as it will enable all vessels to approach the coast boldly, and then to maintain their positions on pilot-ground till day-light, when they will at once be taken into port by the highly intelligent pilots now fully established there.

Very respectfully, sir, I have the honor to be, your obedient servant,

WASHINGTON A. BARTLETT,
*Lieut. U. S. N., assistant Coast Survey.*

To Professor A. D. Bache,
*Superintendent U. S. Coast Survey.*

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## No. 21.

Letter of the Superintendent of the Coast Survey to the Secretary of the Treasury, transmitting the report of Sub-assistant A. M. Harrison, of a survey of Cape Disappointment, or Hancock, for location of light-house.

Coast Survey station,
*Near Alfred, Me., September 29th,* 1851.

Sir: I have the honor to transmit, in pursuance of the instructions of the Department, a minute survey of Cape Disappointment or Hancock, at the entrance to Columbia river, Oregon, for the location of the light-house for which appropriations have been made. To the report and sketch of Assistant A. M. Harrison I add a proof-sheet of the preliminary survey of the entrance, to show in a general way the localities referred to. I have also annexed a report by Lieutenant Bartlett, United States' navy, assistant in the Coast Survey, in relation to this same light, which contains suggestions in reference to the kind of structure to be erected there. I approve the recommendations of Assistant Harrison, of the site marked ⊙ on his map, for the light-house, and of the elevation of forty feet, which he proposes for the light. It should be a sea-coast light of the first class, and will be visible nearly twenty-five miles.

I would recommend that so much of the adjacent woods should be removed as will render the establishment secure from the near approach of fire. Very respectfully, yours,

A. D. BACHE,
*Superintendent U. S. Coast Survey.*

Hon. THOMAS CORWIN,
*Secretary of the Treasury.*

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U. S. COAST SURVEY STATION,
*Cape Hancock, mouth of Columbia river, Oregon,*
*July 28th,* 1851.

DEAR SIR: I send with this report a tracing of Cape Hancock, or Disappointment, on a scale of $\frac{1}{10000}$. It embraces the proposed light-house site and three miles of the shore. Cape Hancock, forming the northern point of the entrance to Columbia river, is a bold, narrow promontory of basaltic rock, projecting into the sea in a curve from the north, around by the west to the south.

The extremity of the cape is formed of a range of hills, varying from one hundred and fifty to two hundred and eighty feet in height, generally narrow at the summits. On the outer faces these hills are covered with rank, high, thick grass and weeds, and slope abruptly to different heights; then falling perpendicularly, present to the ocean an irregular wall of rock, intersected at one or two points by deep inlets, into which the sea flows during flood tides. On the inner side the slope is more gradual, but in most places also steep; and from the top of the ridge down to the water's edge, covered with tall pines, and a dense and occasionally impenetrable undergrowth of bushes; the *salmon berry, fern* and *salal,* being the principal kinds. The soil is rich, and covered to the depth of a foot, and in some places more, with a light yielding carpet of decayed and decaying leaves and branches, the annual deposit of the trees and bushes above.

The cape forms the western shore of Baker's bay, which affords good anchorage in six and three fathoms.

The position which I think most advisable for the location of a light-house, and which I have marked upon the tracing by a black circle, I recommend for the following reasons:

*Height.* Although ninety feet lower than the hill upon which the observatory is situated, (which is the highest on the end of the cape,) I think it has the advantage, from the fact that the fog banks, during their prevalence, frequently, and in fact generally, rest upon and above the summits of the most elevated hills, while those below are clear and unobscured. So I am informed by persons who sail in and out of the river. Light-house hill is one hundred and ninety-two feet high; Observatory hill, two hundred and eighty-seven feet.

*Command to seaward.* The angle commanded to seaward, by a light placed as recommended, would be much greater than one on Observatory hill, unless the Government chose to go to the expense of time and money in felling a large quantity of trees to the northward, and those, like all trees of Oregon, of no ordinary size. A person standing on the proposed site commands a view to seaward of one hundred and thirty-four degrees.

*Form.* Upon the summit it is broader, and would require less digging and grading to secure a sufficiently large foundation. In fact, a light-house could not be erected upon the narrow top of Observatory hill, without a great deal of trouble and expense on this account. In digging, I find stone at the depth of two feet.

The best point at which to land materials for building purposes is the little cove I have marked ("a") upon the tracing. A road which was cut for carrying up the observatory, would suffice to get upon Observatory hill, but the path between the observatory and Light-house hill runs along a narrow ridge. I have marked it upon the tracing by a black line. I think it would be advisable to cut a road directly from the cove to Light-house hill, a distance of about 440 metres, (481 yards.)

The cove ("a") in which our camp is pitched is a good position for a house, being, by the present path, fifteen minutes walk from Light-house hill. A spring of fine water runs in a continual stream from the rocks a few metres from camp, and there is sufficient ground for a small vegetable garden. A house once stood here, but was destroyed by fire. The site for a city has been laid out about two miles from the point, under the title of Pacific city.

The house which you see upon the tracing was erected by the Hudson's Bay Company, and is occupied by a half breed and his family. He has quite a good garden.